

RESEARCH REPORT

AUSTRALIAN PARAMEDICS' EXPERIENCES OF STRESSORS DURING THE COVID-19 PANDEMIC

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ABSTRACT

Objective: Paramedics are exposed to significant job-related stressors, which have been exacerbated by the pressures of the COVID-19 pandemic. Given the essential role that paramedics play in the health system, it is imperative that we understand how their health and wellbeing are affected by this range of stressors.

Methods: We conducted a mixed-methods, cross-sectional statewide survey of the Ambulance Victoria workforce between August and November 2021. A total of 690 paramedics (i.e., operational staff) answered a quantitative question about operational and organizational job stressors, while a subset (N=151) provided a response to a free-text qualitative question about stress related to COVID-19.

Results: Quantitative data revealed the four COVID-19-related stressors were more stressful than all other job-related factors at that time. The specific stressors were COVID-19-related changes to PPE (M=6.05, SD=2.43), workload (M=6.29, SD=2.36), COVID-19-related changes to working conditions (M=6.12, SD=2.74), and COVID-related changes to clinical practice guidelines (M=6.05, SD=2.53), where the midpoint of the rating scale was 4.5. In addition, paramedics reported moderate to high levels of stress for nearly three quarters of all stressors listed. Thematic analysis of the qualitative question showed that paramedics experienced: stress related to operational changes; personal protective equipment-related stress, the everyday life impacts of the COVID-19 pandemic, work-related conflicts and concerns, exposure to COVID-19, vaccine-related stress, and issues with management and communication.

Conclusions: Paramedics have been significantly affected by the unique stressors brought about by the COVID-19 pandemic, which have added strain onto an already stressful work environment. The stressors we have identified suggest that organizations should examine their internal practices and consider their impact on paramedics, along with offering mental health support to paramedics where appropriate.

INTRODUCTION

Paramedics undertake highly demanding and often stressful work, involving long hours and shift work, time-sensitive operations with critically ill individuals, and regular exposure to potentially traumatic events. These significant job-related stressors are directly related to poor mental health and wellbeing (Awais

et al., 2021). For example, research shows that paramedics are particularly vulnerable to the development of mental health concerns including suicidal ideation and posttraumatic stress disorder (PTSD), as well as high rates of burnout (Bentley et al., 2013; Kyron et al., 2022; Vigil et al., 2019).

The healthcare response to the COVID-19 pandemic has placed unprecedented pressure on paramedics, and exacerbated stress, by not only increasing workloads, but also increasing risk through exposure to the virus. While the long-term impacts of the pandemic on paramedics remain unknown, a recent meta-analysis shows that since March 2020 there has been a significant increase in the prevalence of depression, anxiety, and stress compared to the pre-COVID-19 pandemic period for paramedics worldwide (Huang et al., 2022). To adequately support the mental health and wellbeing of paramedics, a clear understanding of the stressors impacting mental health and wellbeing is needed. Paramedics are, however, under-represented in research on the impacts of COVID-19, and there is a particular paucity of Australian research. Two previous studies have explored experiences of COVID-19 amongst Australian paramedics and found that they experienced a range of challenges related to the pandemic (Petrie et al., 2022; Roberts et al., 2021). These studies, conducted early in the pandemic, indicated that the main challenges faced by paramedics were: the pervasiveness of COVID across all life domains; the challenges of widespread disruption at work; risk, uncertainty, and feeling unsafe at work; and the challenges of pandemic (un)preparedness across the health system. These early studies laid an important foundation for future pandemic management. There remains, however, limited evidence around the nature of stressors experienced by paramedics, as previous research tends to focus on combined samples of healthcare workers and paramedics. Understanding the nature of the stressors associated with the COVID-19 pandemic helps identify modifiable stressors and allows paramedic organizations to address these stressors for future pandemics.

This study was conducted with Ambulance Victoria paramedics in Australia in 2021 during the COVID-19 pandemic, and while the state of Victoria was in the midst of its sixth lockdown. The restrictions imposed during the sixth lockdown included limiting movement outside of home, requiring the use of masks outside the home, and limiting the distance that could be travelled. On the 4th of October 2021, the city of Melbourne in Victoria marked 245 days of lockdowns and became the city with the longest cumulative time in lockdown in the world. In this context, the aim of this study was to use a mixed methods approach to better understand the stressors faced by paramedics in this later stage of the pandemic. In addition, we sought to investigate how non-pandemic stressors compared to pandemic stressors.

METHOD

PARTICIPANTS AND PROCEDURE

The data examined in this paper were obtained as part of a larger online, anonymous survey of Ambulance Victoria employees and volunteers in Victoria, Australia. This survey is carried out every two years to evaluate the psychosocial wellbeing of the organization's staff.

Ambulance Victoria employees and volunteers (including both operational, i.e., paramedics, and corporate staff) were invited to participate via email. All current employees

and volunteers who were over the age of 18 were eligible to take part in the survey. Data was collected at a single time-point and each participant completed the survey once, between the 23rd of August and 6th of October 2021. Study information for participants was provided on the survey website, and all participants provided their informed consent to participate in the study online prior to commencing the survey. All data was collected anonymously. Individual responses were kept confidential, and only aggregated summary statistics were reported to Ambulance Victoria without any individually identifiable information. While the whole Ambulance Victoria workforce participated in the workforce survey that formed the basis of this paper, and the impacts of COVID-19 were felt across all employees and volunteers, this study focused on the paramedic subsample only (83% of those who completed the survey), excluding corporate staff. This was due to the two groups having different experiences of the COVID-19 pandemic with paramedics being affected by unique operational stressors. A total of 690 paramedics completed questions related to operational stressors, while a smaller subset responded to an additional open-ended question about stressors related to COVID-19 (21.88%, $n = 151$). The total workforce at the time numbered 5393 employees (including corporate employees), meaning that our paramedic sample constituted 12.79% of the total workforce.

The study received ethical approval from the University of Melbourne Human Research Ethics Committee (HREC) in August 2021 (project reference number 2021-22311-20868-4).

MEASURES

The online survey included demographic questions such as age, gender, marital status, education, and length of time working at the ambulance service. For the operational and organizational stressors, participants were given the instruction: "Below is a list of stressors you may have experienced. Please indicate the severity of the stress that each stressor has caused you in the past 6 months." They were presented with a list of 21 potential operational and organizational stressors and were asked to select a response option from a 9-point Likert scale ranging from 1 (no stress), 5 (average amount of stress), to 9 (high degree of stress) for each stressor. Participants also had the ability to select "not applicable" for each stressor. These stressor items were developed by the research team for the purpose of this research, in consultation with the Ambulance Victoria to ensure they related directly to the experience of Victorian paramedics. The survey included questions regarding COVID-19-related stressors, which were intended to determine the psychosocial needs of Ambulance Victoria employees and volunteers in the later stages of the pandemic and the post-pandemic recovery period. The operational and organizational scale is provided in Supplementary Materials (Table 3). An open-ended, free-text qualitative item was included asking participants about any other COVID-19-related stressors that they may have experienced.

DATA ANALYSIS

Demographics were summarized by descriptive statistics, including means and percentages. Mean ratings of stress severity were calculated for each operational stressor, with those rated above the midpoint of the scale (4.5) considered a more important stressor.

Analysis of qualitative open text responses adopted a thematic approach (Clarke & Braun, 2013) focusing on the types of COVID-19-related stressors experienced by participants. An inductive method was utilized to code the data, moving from descriptive

codes to interpretative codes, and finally to overarching themes. Participant responses were independently coded by one researcher (LFS) who developed preliminary codes. A second researcher (H-AA) discussed and reviewed preliminary codes. Emerging categories showed high consistency, and so a final coding framework was agreed upon to be applied to the full data set. Coding was subsequently completed by each team member, with codes and coding later reviewed and cross-checked collaboratively. Differences in coding were discussed until consensus was reached, and categories were revised where appropriate. Relevant statements were coded with ample context to avoid data fragmentation and de-contextualization. A selection of transcripts and quotes were reviewed collectively by all co-authors under each theme to ensure consensus (Clarke & Braun, 2013).

RESULTS

DEMOGRAPHICS

Demographic and service characteristics of the total number of participants who answered questions about operational stressors (n=690) are presented in Table 1. Participants had a mean age of 41.87 years (SD = 12.16 years) and were predominantly female (51.2%). Most were married (49.8%), had a bachelor's or post-graduate degree (80.9%), and had worked at the ambulance service for more than six years (68.5%). The majority of participants were in a relationship with 49.7% married and 22.2% in a de facto relationship.

Demographic Categories		Frequency	Percentage
Gender	Male	319	46.2%
	Female	351	50.9%
	Non-binary/gender diverse/ prefer not to say	25	3.7%
Marital status	Single	142	20.6%
	Married	343	49.7%
	De facto	153	22.2%
	Separated/divorced/widowed	49	7.5%
Educational qualification	High school	15	2.2%
	Trade certificate	7	1.0%
	College certificate or diploma	107	15.5%
	University degree	380	55.1%
	Post-graduate degree	181	26.2%
Length of service at ambulance organization	Less than a year	36	5.2%
	1-2 years	59	8.6%
	3-5 years	122	17.7%
	6-10 years	144	20.9%
	11-19 years	178	25.8%
	20+ years	151	21.9%

Table 1. Demographic and service characteristics of paramedics (n = 646).

QUANTITATIVE FINDINGS

Participants' ratings of the severity of stress associated with the 21 operational and organizational stressors are presented in Table 2. The top stressor was COVID-19-related changes to PPE, followed by workload, COVID-19-related changes to working conditions, and COVID-19-related changes to clinical practice guidelines. A total of 15 stressors were given a rating above the midpoint of the scale (4.5), indicating a moderate to high degree of stress. Five of these were organizational, nine were operational and one remaining stressor related to issues in paramedics' personal lives. Outside of the top four stressors, the remaining greatest sources of work stress were associated with shift work, organizational and welfare conditions, communication within the ambulance service, direct exposure to a potentially traumatic job with personal significance, training and accreditation requirements, and direct exposure to the death of a child patient.

QUALITATIVE FINDINGS

Of 690 participants, 151 provided a free-text response to the open-ended qualitative item about COVID-19 stressors. Some responses comprised one or two words (e.g., home schooling, lockdown, PPE), however the majority reported full sentences, multiple sentences, or a paragraph. There was also some variation between longer responses, with some focusing on a single issue while others covered multiple points.

From these, seven themes emerged in relation to COVID-19 stressors. These were operational changes, PPE-related stress, everyday life impacts of COVID-19, work-related conflicts and concerns, exposure to COVID-19, vaccine-related stress, and issues with management and communication. Illustrative quotes for the each of the seven themes are provided in the Supplementary Materials (Table 4).

THEME 1: OPERATIONAL CHANGES

Paramedics reported experiencing changes to work-related operations as a significant source of distress during COVID-19. Higher workloads were a commonly reported issue. Paramedics frequently reported feeling a sense of added expectation, urgency, and responsibility in addition to typical workloads. Increases in work demands were noted, such as extra reporting requirements and having to drive long distances to hospitals with capacity to treat COVID-19 patients. Paramedics also reported that when they reached hospitals, they had to deal with long wait times due to ambulance ramping. Compounding this, paramedics felt an inability to treat patients effectively during transport, which generated further distress as paramedics had to observe patients' conditions deteriorate. Higher workloads also reduced the number and quality of break times, with many paramedics reporting a lack of breaks or not being able to finish work on time, and when taking a break, paramedics often encountered a lack of appropriate restroom facilities or rest areas to eat, drink, and relax.

	Mean (SD)
COVID-19-related changes to PPE*	6.60 (2.43)
Workload*	6.29 (2.36)
COVID-19-related changes to working conditions*	6.12 (2.74)
COVID-19-related changes to clinical practice guidelines*	6.05 (2.53)
Shift work*	5.95 (2.39)
Organizational and welfare conditions^	5.93 (2.61)
Communication within ambulance service^	5.71 (2.58)
Direct exposure to a potentially traumatic job that had personal significance* for any reason	5.39 (3.16)
Training and accreditation requirements^	5.32 (2.38)
Direct exposure to death of child patient*	5.27 (3.86)
Direct exposure to distressed family members/loved ones*	5.17 (2.61)
Direct exposure to a multi-casualty event*	4.87 (3.40)
Family and personal life	4.84 (2.47)
Indirect exposure to potentially traumatic events (critical incidents)*	4.61 (2.90)
Direct exposure to unsuccessful resuscitation of a patient*	4.57 (3.04)
Communication with other professionals and the public*	4.27 (2.36)
Threat to self*	4.07 (2.86)
Industrial relations^	4.03 (2.84)
Threat to colleague*	3.88 (2.91)
Driving*	3.79 (2.39)
Job security^	3.55 (2.81)
` PPE = personal protective equipment. *Operational stressors. ^Organizational stressors.	

Table 2. Mean scores for operational and organizational stressors (n = 646). **Bold font** indicates mean scores above the mid-point (4.5). Scores could range 1-9.

THEME 2: PPE-RELATED STRESS

Wearing COVID-19-specific PPE was an extra operational requirement of working during the pandemic. It has been given its own section due to the frequency with which paramedics mentioned PPE as a stressor. Paramedics reported feeling distress over the policy mandating removal of facial hair to ensure masks adequately seal around the mouth and nose. Paramedics reported feeling targeted by this policy (implemented indefinitely) and felt distress about having to alter physical appearances. Paramedics experienced distress about low PPE supplies and feeling they were not being fully protected by adequate or best available PPE products. In addition, when available, paramedics reported that wearing extra protection for long durations often caused overheating. The physical barriers imposed by PPE made drinking water regularly difficult, leading to dry skin and headaches. In addition to this, paramedics reported experiencing pain due to constantly wearing PPE and that PPE was an impediment to their work due (impairing vision and communication).

THEME 3: EVERYDAY LIFE

The impacts of COVID-19 extended into everyday life and caused difficulties and distress. Due to the closure of schools and childcare during the lockdown, paramedics expressed difficulties around managing home schooling and/or caregiving responsibilities alongside work. Paramedics also reported distress related to statewide lockdown mandates. This included distress surrounding the inability to go anywhere during leave, worries about family members' levels of stress during the lockdown, and feelings of isolation from not being able to see family, friends, and support networks.

THEME 4: WORK-RELATED INTERPERSONAL CONFLICTS AND CONCERNS

Several work-related conflicts and concerns were reported by paramedics. Paramedics reported having arguments with hospital staff (e.g., in relation to long wait times), as well as workplace issues with colleagues. Conflict with colleagues manifested as complaints and confrontations in the workplace. COVID-19 restrictions also created separation between colleagues, lowering overall morale and camaraderie. Paramedics also reported feeling isolated and separated from their team members due to social distancing initiatives and a ban on food sharing. Paramedics were also challenged with public attitudes and behaviors toward COVID-19. Paramedics described feeling unappreciated when observing complacency, irresponsibility, and disregard for COVID-19 safety among the general public (e.g., lockdown protests, not wearing masks, etc.).

THEME 5: EXPOSURE TO COVID-19

Paramedics wrote extensively about exposure to COVID-19 as a source of stress. This included the ongoing threat of being exposed to the virus and becoming unwell through their treatment of COVID-19 patients. Further, a major concern of paramedics was the fear of dual site risks, where they may unknowingly carry or transmit the virus from work to home, putting family and friends at risk of exposure.

THEME 6: VACCINE-RELATED STRESS

Paramedics also described experiencing stress in relation to the vaccine. This included a lack of timely access to vaccines while working closely with COVID-19 patients. Para-

medics reported that these issues around vaccine access made them feel unsupported by management. Compounding this, paramedics experienced stress caused by members of the community who were protesting vaccine mandates. Paramedics reported stress from constant reporting of anti-vaccine protests in the media, having arguments with people about vaccines (e.g., friends), and stress from colleagues who refuse to be vaccinated. In contrast, other paramedics reported experiencing stress due to the vaccine mandate, being forced to be vaccinated to continue working as a paramedic, and management not respecting their individual health choices and personal decision making.

THEME 7: ISSUES WITH MANAGEMENT AND COMMUNICATION

Various issues relating to the organization were commonly noted as sources of distress among paramedics. Paramedics reported poor communication from management regarding organization guidelines surrounding COVID-19. Paramedics felt stress around feeling responsible for keeping up to date with constantly changing guidelines, with no access to clear, reliable advice to follow. When information was delivered from the organization, paramedics felt that communication was poor and ineffective. Similarly, despite organizations providing educational material, paramedics reported experiencing stress due to a perceived lack of education, awareness, and training about COVID-19 (e.g., pathophysiology) and how to work safely and confidently in COVID-19 environments. Issues with HR and organizational management were also reported stressful, with paramedics citing poor or inconsistent communication from senior team members. Some paramedics noted a perceived lack of professional and emotional support from managers and other team members. Another source of stress was a lack of professional development opportunities. Paramedics noted having limited time to practice skills, lack of Continuing Professional Development (CPD) days, and for recent graduates, uncertainties around gaining on-road experience due to isolations and lockdowns.

DISCUSSION

This study examined the stressors that were faced by paramedics in the Australian state of Victoria at the height of the 2021 COVID-19 lockdowns. Unsurprisingly, three COVID-19-related stressors were ranked in the top four of 21 operational and organizational stressors, with workload being the other. While workload was not explicitly listed as a COVID-19-related stressor, qualitative reports from paramedics indicated that workloads significantly increased as a result of the pandemic, implying that all the top four stressors were directly or indirectly related to the impacts of COVID-19. This is in line with the findings of Roberts and colleagues (2021), who found that 76% of rural-based emergency services workers in Australia reported an increase in workload due to COVID-19, on top of an already high workload before the pandemic. Our results support previous research that working as a paramedic is inherently stressful (Lawn et al., 2020). Of the 21 stressors that were provided, paramedics scored 15 stressors as being in the moderately or highly stressful range. However, the findings from the qualitative component of the study leads us to suggest that most of these occupational and organizational stressors were directly or indirectly impacted by the COVID-19 pandemic and its consequences.

A salient finding was that COVID-19-related changes to PPE was one of the most stressful factors for paramedics during this period. Paramedics reported that PPE was often in

short supply or of an inferior quality, which was also reported in several studies as one of the biggest challenges facing paramedics in Australia and internationally during the pandemic (Hoernke et al., 2021; Li et al., 2021). Paramedics also reported that wearing PPE for long periods resulted in dehydration and physical pain, and that PPE impaired vision and communication, impacting their ability to deliver care to their patients. This is consistent with qualitative research involving patients who utilized emergency health-care in Australia, which found that many patients, especially those who were deaf, with hearing difficulties, children, or older people, experienced communication challenges due to healthcare workers wearing PPE (Smith et al., 2021). This is a modifiable risk factor and access to high quality PPE is essential to minimize this stressor. Future research would be useful in PPE design that overcomes some of the difficulties paramedics experienced in communicating with patients with disabilities.

COVID-19 also significantly impacted paramedics' experience of the workplace. They reported that an increase in workload, changes to working conditions, and changes to clinical practice guidelines were among the most stressful things in their workday. Many paramedics reported experiencing stress related to operational changes, conflicts with colleagues and hospital staff, and a lack of support or communication from management. This is consistent with other recent research on Australian paramedics, which found that paramedics described feeling unsupported by management and receiving inconsistent information in the workplace (Petrie et al., 2022). This is also consistent with findings from a range of other workforces, with employees who worked from home during the pandemic reporting having limited communication with colleagues and managers, and that this was a barrier to productivity (Mustajab et al., 2020). Support from colleagues and managers, however, is an important protective factor for employee mental health, particularly healthcare workers in the context of a virus outbreak (Carmassi et al., 2020; Petrie et al., 2022). Paramedic organizations should design policy and practices that aim to maximize consistent communication strategies to future-proof these organizations against further waves of COVID-19 or other disasters.

It is well recognized that the COVID pandemic had an unparalleled impact on health care workers. Across the world, published research has shown that usual working conditions were challenged which in turn impacted wellbeing and mental health of health care and emergency services workers (Ardebili et al., 2021; Huang et al., 2022; Petrie et al., 2022; Roberts et al., 2021). Our results suggest that this was certainly the case for Australian paramedics. The impacts of the pandemic meant that usual operational and organizational procedures could not proceed as usual within Ambulance Victoria. Worldwide PPE shortages, hospital ramping, a rapid increase in patient numbers, and a sudden need for purpose-built facilities (e.g., separate rest and toilet facilities) all increased stress for Australian paramedics. Previous studies have indicated that these stressors could be ameliorated by a number of protective factors (Carmassi et al., 2020; Roberts et al., 2021). The findings from the current study showed that support from one's friends and family were helpful as well as support in the workplace. Other workplace factors included adequate training in pandemic response procedures, working in structured units, feeling that the workplace was safe and clear communication of guidelines. Finally, positive coping strategies were also protective. Teaching paramedics these types of coping strategies, along with ensuring thorough training and clear communication, could help to improve paramedics' experiences in future pandemics.

Paramedics were not only affected by COVID-19 in the workplace, but also described its ramifications in their homes and social lives. As was the case for many Victorians and people across the globe, paramedics were concerned about having to home school their children or find adequate care for them while the paramedics were at work during lockdowns. They also suffered from feelings of isolation and frustration about being unable to leave their homes when quarantined or during lockdowns. What was unique about the paramedic experience, however, were concerns about being exposed to COVID-19 at work and potentially taking the virus home to their families. They also had to contend with vaccine mandates during this phase of the pandemic, with some becoming distressed about public protest against vaccines, while others did not want to conform to the mandate. A prior study of Australian paramedics' experiences of the pandemic in 2020 echoed these findings, noting the pervasiveness of COVID-19-related stress in everyday life and a lack of social support due to lockdown-related isolation (Petrie et al., 2022). Similarly, in the international context, research has shown that healthcare providers faced a fear of transmitting the disease to family members, and anxiety and fear when isolating away from family members (Ardebili et al., 2021). These stressors may have been worse for paramedics as they struggled to balance a uniquely stressful work environment with broader stressors affecting the general population.

The results of this study indicate that the disruption of normal working practices and day-to-day life during the COVID-19 pandemic caused paramedics to experience considerable stress. Our findings support previous research that suggests that poor workplace mental health is largely caused by structural issues in the workplace such as excessive work demands, role overload, and insufficient support (Gilboa et al., 2008). A recent study of Canadian healthcare workers found that employees only rarely used formal mental health supports provided by the organization, preferring informal supports from peers or coping strategies such as exercise or hobbies (Mnard et al., 2022). Historically there has been a tendency to focus on the individual worker with supports targeted at the individual. However, the findings of this study suggest that many of the stressors emanated from the workplace, and as such, interventions that target the organization may be useful. These includes unambiguous communication from management, increased training in pandemic response, consulting with staff about their needs and providing practical solutions where possible (in regards, for example, to access to toilets and rest breaks), and training managers in how to emotionally support their staff.

LIMITATIONS

This study used voluntary response sampling, so there may have been a bias for participants who held stronger opinions and were more motivated to be more likely to respond to this survey. Similarly, the sample made up a small proportion of the workforce at Ambulance Victoria, meaning that it may not be fully representative of the larger population. Nevertheless, the sample included a balanced representation of men and women (improving generalizability of findings), and the sample size was larger than similar qualitative studies (Ardebili et al., 2021; Hoernke et al., 2021; Petrie et al., 2022). The results are also consistent with those of previous studies (Ardebili et al., 2021; Petrie et al., 2022; Willis et al., 2021). An additional limitation of the study is that the qualitative responses were gathered via short text responses to a survey, and there was potential for bias in the selection of the illustrative quotes. Richer, more detailed answers could have been gained from an in-depth interview process. However, the study's strengths

are the combination of quantitative and qualitative survey data, and the ability to collect responses from a wider range of people with a larger sample size than may have been possible had the data collection had been limited to interview data. A future direction for research is to further develop and validate the operational and organizational stressor scale used in the current study.

CONCLUSION

Our study has demonstrated that the COVID-19 pandemic produced a number of new stressors for paramedics in Victoria, Australia, particularly in relation to COVID-19-related changes to PPE, workload, COVID-19-related changes to working conditions, and COVID-related changes to clinical practice guidelines. These new stressors were in addition to compounding preexisting occupational stressors. Prospective research can further these findings contrasting pandemic related stressors with typical occupational stressors of paramedicine to assess the differential impacts on mental health and well-being and exploring tailored ways to mitigate different stressor experiences. The current findings highlight the need to design organizational policies and practices that will minimize these stressors in future waves of the pandemic or other disasters. It is also important to offer individual targeting interventions for paramedics who are experiencing mental health difficulties. This could ensure that paramedics maintain their health and continue to provide a critical response to this ongoing pandemic, and that organizations are better placed to respond to the next pandemic.

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Instruction: Below is a list of stressors that you may have experienced. Please indicate the severity of the stress that each stressor has caused for you in the past 6 months										
Stressors	1 (No Stress)	2	3	4	5 (Average amount of stress)	6	7	8	9 (High degree of stress)	N/A
Shiftwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Driving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workload	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Threat to self	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Threat to colleague	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct exposure to death of a child patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct exposure to unsuccessful resuscitation of a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct exposure to a multi-casualty event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct exposure to distressed family members/loved ones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Direct exposure to a potentially traumatic job that had personal significance for any reason	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indirect exposure to potentially traumatic events (critical incidents)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication within ambulance service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication with other professionals and the public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisational and welfare conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ongoing training and accreditation requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Industrial relations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family and personal life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COVID-19 related changes to working conditions (e.g., working from home)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COVID-19 related changes to PPE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COVID-19 related changes to CPGs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Table 3. The operational stressors questions that paramedics answered as part of a larger survey regarding wellbeing and psychosocial factors. Abbreviations: COVID-19 = coronavirus disease 19, CPG = clinical practice guidelines, PPE = personal protective equipment.

Theme	Stressor	Illustrative Quotes
Operational changes	Higher workload	<p>"Additional workload from COVID-19 related operational preparedness / response activities"</p> <p>"Increased workload leading to poor outcomes for other non-COVID patients"</p> <p>"Increased workload with sicker patients with limited resources. Unable to help them"</p>
	Having to drive long distances to hospitals with capacity to treat COVID-19 patients	<p>"Having to drive long distances (55km) for a hospital that has capacity for COVID positive patients"</p>
	Long wait times at the hospital	<p>"Increase demand on hospitals causing increases to ramping"</p> <p>"Also the ramping at the hospital as they also can't cope with the increase in caseload"</p> <p>"Waiting 6 plus hours for a bed whilst wearing Tyvek"</p> <p>"Exhausted, long wait times are draining and bad on body"</p>
	Inability to treat patients	<p>"Increase stress with patient management and lack of ability to treat patients"</p> <p>"Inability to provide life saving measures to patients (i.e. no nebuliser meds for adult asthma)"</p> <p>"Watching [respiratory] distress patients deteriorate during transport"</p> <p>"Restrictions on being able to provide treatment options to the full extent"</p>
	Lack of breaks	<p>"Also the lack of fatigue breaks following s/Covid jobs especially after a Covid clean in prolonged PPE is exhausting"</p> <p>"Not getting to have meal breaks or ever finish on time on most shifts"</p> <p>"No meal breaks"</p>
	Lack of appropriate facilities	<p>"Lack of facilities for paramedics at EDs is very stressful"</p> <p>"Limited access to toilets, rest areas, food/drink"</p> <p>"Lack of hand soap in some portaloos [portable toilet] is stressful- especially during menses"</p>
	COVID-related changes to logistics	<p>"Frequent changes and [delegated] responsibility [without] clarity"</p> <p>"Covid related changes to logistics"</p>
PPE-related stress	Facial hair policy	<p>"Being directly targeted by the facial hair policy"</p> <p>"Facial hair policy should be temporary only"</p> <p>"Not being able to have a beard, which directly impacts my self-esteem and pride in personal appearance"</p>
	Availability of PPE	<p>"Not enough PPE supplies"</p> <p>"Availability of appropriate PPE (surgical masks of decent quality)"</p>
	Physical impacts of PPE	<p>"Physical toll of wearing PPE (skin problems, dehydration, headaches)"</p> <p>"Constant dehydration, pain from wearing P2 masks constantly, overheating in PPE"</p> <p>"Wearing PPE for long duration in warm to hot weather. Wearing PPE levels higher than other health professionals"</p> <p>"Working in PPE is really difficult, it make it harder to see, and loss of peripheral vision due to PPE, along with increased difficulties communicating, and wearing mask and keeping hydrated"</p>
Everyday life	Home schooling/care-giving	<p>"Childcare issues due to family members not being available due to COVID"</p> <p>"Home schooling. Child care family not wanting us home after treating covid patients"</p> <p>"Organising child care when schools closed, holidays and access to family for help due to lockdown"</p>
	Lockdown	<p>"Being in lockdown during leave"</p> <p>"Not being able to see my adult daughter since 2019 as she is living in Brisbane"</p> <p>"Lockdown, isolation from family and support systems"</p> <p>"Lock downs don't allow me to access my self care regime (hiking)"</p>
Work-related interpersonal conflicts and concerns	Arguments with hospital	<p>"Arguments with [hospitals] about offloading after 20 minutes"</p> <p>"Dealing with hospitals"</p>
	Public attitude and behaviour	<p>"Feeling that public do not care enough about healthcare worker health to wear a mask so it covers both nose and mouth"</p> <p>"Public perception, complacency and disregard and it impact on our frontline"</p>
	Social isolation at work	<p>"That we cannot choose to share food (even wrapped) at work & now have to wear masks at our socially distanced desks. Morale is very low already, [introducing] these added measures further declines morale significantly"</p> <p>"The fact that masks have been introduced at our socially distanced desks and shared food is banned. How can you ban that, we're are adults and can make our own choices if we want to share the food or not"</p> <p>"Team separation, isolation"</p>
	Workplace conflict with colleagues	<p>"Horizontal violence"</p> <p>"Vexatious complaints from another employee"</p>

Table 4. COVID-19 related qualitative themes, stressors and illustrative quotes.

Theme	Stressor	Illustrative Quotes
Exposure to COVID-19	Being exposed to COVID-19	<p>"Ongoing threat of becoming unwell"</p> <p>"Exposure due to patients with extremely mild symptoms"</p> <p>"Being directly exposed to COVID19"</p> <p>"Might catch it"</p>
	Transmitting COVID-19 to family or friends	<p>"COVID-19 exposure at work then returning to home with family and friends"</p> <p>"Fear of taking Covid 19 home from the workplace"</p> <p>"Attending positive pts daily. Concerns with contracting and passing on to family"</p> <p>"Getting the virus at work and transmitting to family"</p>
Vaccine-related stress	Lack of access to vaccines	<p>"Lack of vaccination access"</p> <p>"No vaccination access"</p>
	Vaccine mandate	<p>"Mandatory vaccination no choice"</p> <p>"Upcoming mandate on covid 19 vaccine is causing me an unbearable amount of stress"</p> <p>"[Mandatory] vaccines unlawful breach on my human right"</p> <p>"Prospect of mandatory vaccinations when my vaccine of choice hasn't arrived in Australia yet"</p>
	Antivaxxers	<p>"Antivax protests and loss of friends hopefully temporarily due to their unwillingness to listen to evidence regarding vaccines and covid risks"</p> <p>"Stress from colleagues who refuse to be vaccinated/follow procedures"</p> <p>"COVID-19 and the talk of vaccinations in the media constantly. I am pro-vaccination and have found the protests and arguments against vaccination quite stressful"</p>
Issues with management and communication	Poor communication of consistently changing COVID guidelines	<p>"Constantly changing requirements for PPE; information spread across many platforms"</p> <p>"Fault seems to like with the individual paramedic if Covid updates weren't followed although updates are unclear and frequently changing"</p> <p>"Inconsistent communication, frequent changes and [delegated] responsibility without clarity"</p> <p>"Overwhelmed with COVID info from multiple sources & constantly changing"</p> <p>"Initial pandemic response characterised by daily changing info, CPG criteria, PPE requirements etc."</p>
	Issues with management/HR	<p>"Lack of senior [leadership] availability for compassionate conversation.</p> <p>"Poor communication and [leadership] care"</p> <p>"Lack of support from AV when managing patients with restricted skillset due to COVID concerns"</p>
	Lack of education about COVID	<p>"Lack of education on the pathophysiology of the disease itself."</p> <p>"Lack of structured training and education to allow me perform my role safely and with a high degree of confidence and competence."</p>
	Lack of professional development opportunities	<p>"Lack of CPD days and expecting there is downtime to complete them online"</p> <p>"Less time to practice skills at branch"</p> <p>"Isolation uncertainties and being able to gain enough on road experience as a grad"</p>
	Poor communication from management (excessive or ineffective)	<p>"Based upon workload and consistent guidelines changes with extremely poor communication from the service."</p>

Table 4 (cont.). COVID-19 related qualitative themes, stressors and illustrative quotes.